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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/499,525	02/10/2000	Hong Heather Yu	9432-000086	1397

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Harness Dickey and Pierce PLC
P O Box 828
Bloomfield Hills, MI 48303

EXAMINER
JACKSON, JAKIEDA R

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 05/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/499,525	Applicant(s) YU ET AL.	
	Examiner Jakieda R Jackson	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *6,7,13 and 14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-12,15 and 16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,5*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the Office Action mailed February 5, 2004, applicant submitted an Amendment filed on March 19, 2004, in which the applicants traversed and requested reconsideration with respect to **claims 1-5, 8-12 and 15-16**.

2. Examiner acknowledges the following amendments:

- claims 6-7 and 13-14 are canceled
- claims 1-5, 9-12 and 16 are amended
- formal drawings enclosed

Response to Arguments

3. Applicant's arguments filed March 19, 2004 have been fully considered but they are not persuasive. Applicant argues that Tewfik fails to show the three operations to transform a signal to a cepstrum domain. That operation is that the signal undergoes a fast Fourier transform (FFT), followed by a logarithmic operation, then an inverse FFT. Nowhere in the claims does this operation appear. Therefore, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., three operation to transform a signal to a cepstrum domain) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not

read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Also, applicant argues that claims 1-4 and 6-9 rejected under 35 U.S.C. 103 (a) as obvious based upon Tewfik in view of Sharma, are broad conclusory statements.

However, claims 6 and 13 have been canceled, which leaves only claim 9 remaining. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Sharma discloses detecting a recorded voice data wherein transforming the attacked inverse transformation signal to a non-base domain, so as to generate a second transformed audio signal that is in the non-base domain (*see Sharma;* column 13, lines 26-67).

Therefore, it would have been obvious to combine Tewfik with Sharma, to obtain an audio sample for extraction of the channel characteristics or "estimate the channel" for distortion purposes (column 12, lines 23-34) and to prevent fraudulent access to systems (column 3, lines 1-3).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 5, 8, 10-12 and 15-16** are rejected under 35 U.S.C. 102(e) as being anticipated by Tewfik et al. (U.S. Patent No. 6,442,283), hereinafter referenced as Tewfik.

Regarding **claims 1 and 11**, Tewfik discloses a computer implemented method and apparatus for embedding hidden data (watermark; column 1, lines 36-54) in an audio signal (column 5, lines 40-43), comprising the steps of:

receiving the audio signal in a base domain (time domain; column 7, lines 27-38);

transforming the received audio data to one of a linear prediction residue domain and a cepstrum domain (spectrum domain; column 9, lines 11-31)

embedding the hidden data in the transformed one of a linear prediction residue domain and a cepstrum domain (spectrum domain; column 9, lines 11-31) via parametric representation of the audio signal (column 9, lines 51-62).

Regarding **claim 2**, Tewfik discloses the method and apparatus further comprising:

transforming the received audio signal to the one of a linear prediction residue domain and a cepstrum domain (spectrum domain; column 9, lines 11-31) such that transform domain coefficients are generated that are indicative of the transformed non-base domain audio signal (F-value; column 9, lines 24-26).

Regarding **claims 3 and 12**, Tewfik discloses the method and apparatus further comprising:

transforming the received audio signal to one of a linear prediction residue domain and a cepstrum domain (spectrum domain; column 9, lines 11-31) such that transform domain coefficients are generated that are indicative of the transformed non-base domain audio signal (F-value; column 9, lines 24-26).

manipulating the statistical measure (statistical F-test; column 9, lines 6-30) of a selected subset of the transform domain coefficients in order to embed the hidden data (column 5, lines 1-9).

Regarding **claim 4**, Tewfik discloses the method and apparatus further comprising:

modulating the embedded data (figure 3, element 304) with at least one predetermined statistical feature of the transformed audio signal (column 11, lines 1-11).

Regarding **claim 5**, Tewfik discloses the method and apparatus further comprising:

increasing the amplitude (change in amplitude; column 8, lines 48-62) of at least one predetermined feature of the transformed audio signal so that statistical mean of the predetermined feature is positive for embedding a bit of one in the audio signal (column 3, lines 24-36 and column 4, lines 26-27).

Regarding **claims 8 and 15**, Tewfik discloses the method and apparatus further comprising:

using a psycho-acoustic model (MPEG psychoacoustic masking model; to control inaudibility of the embedded data (column 5, lines 9-14).

Regarding **claims 10 and 16**, Tewfik discloses the method and apparatus further comprising:

transforming the received audio signal to the cepstrum domain (column 9, lines
11-31);

embedding the hidden data in the cepstrum domain (column 9, lines 11-31); and

enforcing a positive mean to embed a "1" and keeping a zero mean intact to embed a "0" in the cepstrum domain (column 4, lines 19-27 and column 11, lines
26-35).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tewfik et al. in view of Sharma et al. (U.S. Patent No. 6,480,825), hereinafter referenced as Sharma.

Regarding **claim 9**, Tewfik discloses a computer implemented method and apparatus for embedding hidden data in an audio signal further comprising:

generating an inverse transformation signal (inverse fourier transform) using the embedded hidden data that is in the transformed audio signal (column 10, lines 40-45);

receiving an attack (shifting) upon the generated inverse transformational signal (column 10, lines 6-21) but lacks wherein transforming the attacked inverse transformation signal to a non-base domain so as to generate a second transformed audio signal that is in the non-base domain; and

extracting the embedded hidden data from the second transformed audio signal.

Sharma discloses a system and method for detecting a recorded voice data wherein transforming the attacked inverse transformation signal (inverse

Fourier transform) to a non-base domain (cepstral domain; column 12, lines 44-66), so as to generate a second transformed audio signal that is in the non-base domain (column 13, lines 26-67); and

extracting the embedded hidden data (figure 4A, element 240) from the second transformed audio signal (column 13, lines 26-67), to obtain an audio sample.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tewfik's invention such that the non-base domain is selected from the group consisting of linear prediction residue and cepstrum domain, such that the transformed attacked inverse transformation signal is in the non-base domain to generate a second transformed audio signal that is in the non-base domain and such that it extracts from the embedded hidden data from the second transformed audio signal that is in the non-base domain, to obtain an audio sample for extraction of the channel characteristics or "estimate the channel" for distortion purposes (column 12, lines 23-34) and to prevent fraudulent access to systems (column 3, lines 1-3).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R Jackson whose telephone number is 703.305.5593. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703. 305.4827. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.305.4700.

JRJ
May 17, 2004

DORIS H. TO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600